Étape 2: Initialiser et redémarrez les routeurs et les commutateurs:

```
Router>enable
Router#erase startup
Router#erase startup-config
Erasing the nvram filesystem will remove all configuration files! Continue? [confi
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
Router#reload
Proceed with reload? [confirm]
System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 2010 by cisco Systems, Inc.
Total memory size = 512 MB - On-board = 512 MB, DIMM0 = 0 MB
CISCO1941/K9 platform with 524288 Kbytes of main memory
Main memory is configured to 64/-1(On-board/DIMM0) bit mode with ECC disabled

Readonly ROMMON initialized

program load complete, entry point: 0x80803000, size: 0x1b340
program load complete, entry point: 0x80803000, size: 0x1b340

IOS Image Load Test
___________________
Digitally Signed Release Software
program load complete, entry point: 0x81000000, size: 0x2bb1c58
Self decompressing the image :
################################################################################ [OK]
Smart Init is enabled
smart init is sizing iomem
                  TYPE      MEMORY_REQ
           HWIC Slot 1      0x00200000     Onboard devices &
          buffer pools      0x01E8F000
------------------------------------------------
                TOTAL:      0x0268F000
```

Étape 3: Configurez les paramètres de base pour chaque routeur :

a)

```
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#no ip domain-lookup
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
```

b) Hostname

```
Router#configure term
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#Hostname R2
R2(config)#
```

c) On utilise la commande, enable secret class :

```
Router(config)# Hostname R1
R1(config)#enable secret class
R1(config)#
```

d)

```
R1(config)#enable secret class
R1(config)#line console
% Incomplete command.
R1(config)#line console 0
R1(config-line)#password cisco
R1(config-line)#exit
R1(config)#line vty 0 4
R1(config-line)#password cisco
R1(config-line)#
```

e)

```
R2(config-line)#login
R2(config-line)#logging synchronous
R2(config-line)#
```

f)

```
R1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#interface Giga
R1(config)#interface GigabitEthernet 0/0
R1(config-if)#ip address 192.168.0.1 255.255.255.0
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

R1(config-if)#
```

g)

```
R1(config)#int s0/1/1
R1(config-if)#clock rate 128000
R1(config-if)#
```

h)

```
R1(config)#router eigrp 1
R1(config-router)#network 192.168.0.0 0.0.0.255
R1(config-router)#network 192.168.1.0 0.0.0.255
R1(config-router)#network 192.168.2.252 0.0.0.3
R1(config-router)#no auto-summary
R1(config-router)#
```

i)

```
R2(config)#router eigrp 1
R2(config-router)#network 192.168.2.252 0.0.0.3
R2(config-router)#redistribute static
R2(config-router)#exit
R2(config)#ip route 0.0.0.0 0.0.0.0 209.165.200.225
R2(config)#
```

j)

```
Enter configuration commands, one per line.  End with CNTL/Z.
ISP(config)#ip route 192.168.0.0 255.255.252.0 209.165.200.226
ISP(config)#
```

k)

```
ISP#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
ISP#
```

Étape 4: Vérifiez la connectivité du réseau entre les routeurs:

-

```
R2#ping 192.168.2.253

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.2.253, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/5/17 ms

R2#
```

- **Ping de R1 vers R2**

```
R1#ping 192.168.2.254

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.2.254, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/14/33 ms

R1#
```

- **Ping de R2 vers ISP**

```
R2#ping 209.165.200.225

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 209.165.200.225, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/9/15 ms

R2#
```

Partie 2: Configuration d'un serveur DHCPv4 et d'un agent de relais DHCP:

Étape 1: Configurez les paramètres du serveur DHCPv4 sur le routeur R2.

- Configurer pool d'adresse

```
R2(config)#interface gigabitEthernet 0/0
R2(config-if)#ip dhcp pool R1G0
R2(dhcp-config)#exit
R2(config)#interface gigabitEthernet 0/1
R2(config-if)#ip dhcp pool R1G1
R2(dhcp-config)#
```

- Exclure les 9 premières adresses commençant par .1.

```
R2(config)#ip dhcp excluded-address 192.168.0.1 192.168.0.9
R2(config)#ip dhcp excluded-address 192.168.1.1 192.168.1.9
R2(config)#
```

-

```
R2(config-if)#ip dhcp pool R1G0
R2(dhcp-config)#exit
R2(config)#interface gigabitEthernet 0/1
R2(config-if)#ip dhcp pool R1G1
R2(dhcp-config)#exit
R2(config)#ip dhcp excluded-address 192.168.0.1 192.168.0.9
R2(config)#ip dhcp excluded-address 192.168.1.1 192.168.1.9
R2(config)#ip dhcp pool R1G0
R2(dhcp-config)#network 192.168.0.0 255.255.255.0
R2(dhcp-config)#default-router 192.168.0.1
R2(dhcp-config)#dns-server 209.165.200.225
R2(dhcp-config)#domain-name ccna-lab.com
R2(dhcp-config)#lease 2
```

```
R2(config)#interface gigabitEthernet 0/1
R2(config-if)#ip dhcp pool R1G1
R2(dhcp-config)#network 192.168.1.0 255.255.255.0
R2(dhcp-config)#default-router 192.168.1.1
R2(dhcp-config)#dns-server 209.165.200.225
R2(dhcp-config)#domain-name ccna-lab.com
R2(dhcp-config)#lease 2
```

Étape 2: Configurez R1 en tant qu'agent de relais DHCP:

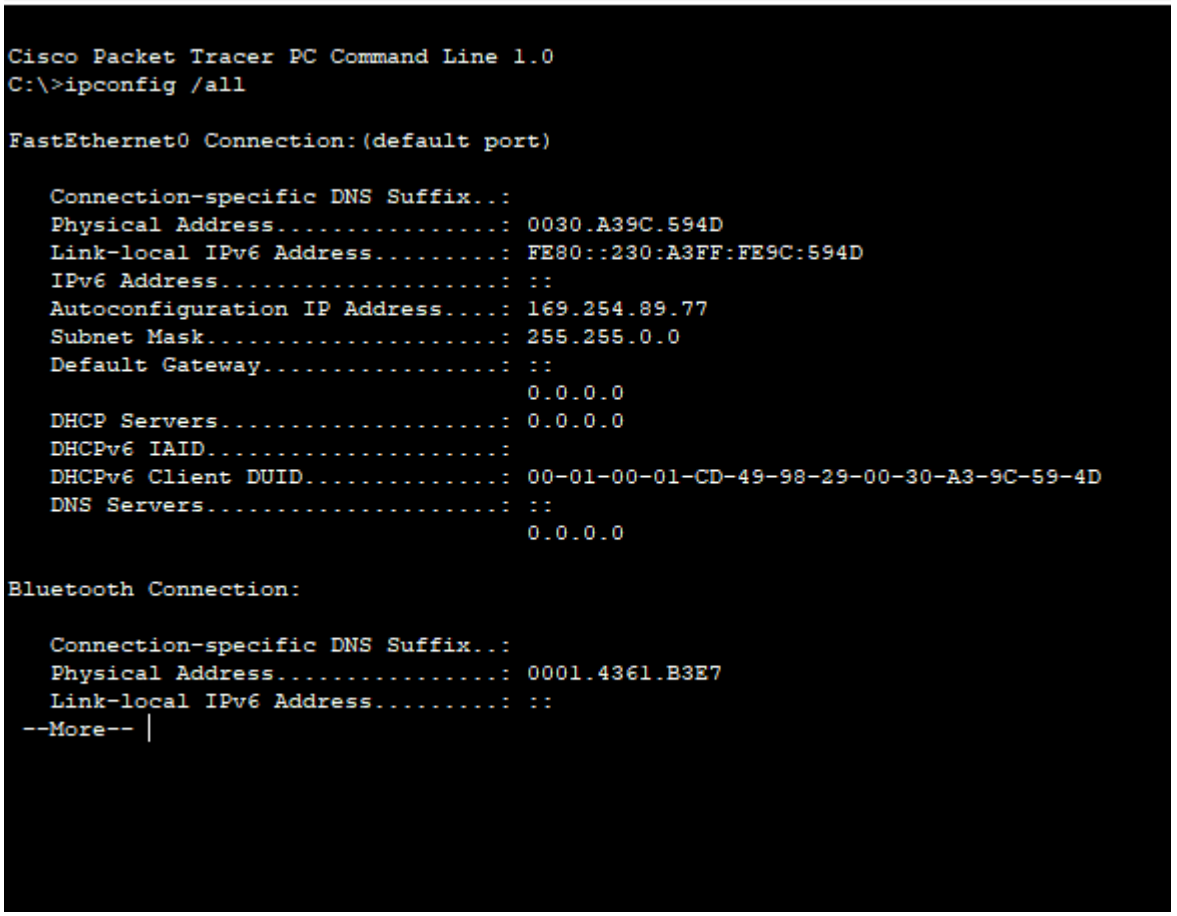
```
R1>enable
Password:
R1#conf
R1#configure ter
R1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#int gi0/0
R1(config-if)#ip helper-address 192.168.2.254
R1(config-if)#int gi0/1
R1(config-if)#ip helper-address 192.168.2.254
R1(config-if)#
```

Étape 3: Notez les paramètres IP pour PC-A et PC-B:

- **Pour PCA**

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig /all

FastEthernet0 Connection:(default port)

   Connection-specific DNS Suffix..:
   Physical Address.................: 00E0.F7CD.411B
   Link-local IPv6 Address.........: FE80::2E0:F7FF:FECD:411B
   IPv6 Address....................: ::
   Autoconfiguration IP Address....: 169.254.65.27
   Subnet Mask.....................: 255.255.0.0
   Default Gateway.................: ::
                                     0.0.0.0
   DHCP Servers....................: 0.0.0.0
   DHCPv6 IAID.....................:
   DHCPv6 Client DUID..............: 00-01-00-01-A8-42-3B-36-00-E0-F7-CD-41-1B
   DNS Servers.....................: ::
                                     0.0.0.0

Bluetooth Connection:

   Connection-specific DNS Suffix..:
   Physical Address.................: 00D0.BCA7.5620
   Link-local IPv6 Address.........: ::
   IPv6 Address....................: ::
   IPv4 Address....................: 0.0.0.0
   Subnet Mask.....................: 0.0.0.0
   Default Gateway.................: ::
                                     0.0.0.0
   DHCP Servers....................: 0.0.0.0
   DHCPv6 IAID.....................:
   DHCPv6 Client DUID..............: 00-01-00-01-A8-42-3B-36-00-E0-F7-CD-41-1B
   DNS Servers.....................: ::
                                     0.0.0.0
```

- **Pour PCB**

- 

Étape 4: Vérifiez les services DHCP et les adresses louées sur R2:

C: L'index actuel affiche la prochaine adresse IP qui sera attribuée par le serveur DHCP.

```
R2#show ip dhcp pool

Pool R1G0 :
 Utilization mark (high/low)    : 100 / 0
 Subnet size (first/next)       : 0 / 0
 Total addresses                : 254
 Leased addresses               : 0
 Excluded addresses             : 2
 Pending event                  : none

 1 subnet is currently in the pool
 Current index        IP address range                    Leased/Excluded/Total
 192.168.0.1          192.168.0.1      - 192.168.0.254     0    / 2     / 254

Pool R1G1 :
 Utilization mark (high/low)    : 100 / 0
 Subnet size (first/next)       : 0 / 0
 Total addresses                : 254
 Leased addresses               : 0
 Excluded addresses             : 2
 Pending event                  : none

 1 subnet is currently in the pool
 Current index        IP address range                    Leased/Excluded/Total
 192.168.1.1          192.168.1.1      - 192.168.1.254     0    / 2     / 254
R2#
```

d)

```
R2#show run | section dhcp
ip dhcp excluded-address 192.168.0.1 192.168.0.9
ip dhcp excluded-address 192.168.1.1 192.168.1.9
ip dhcp pool R1G0
 network 192.168.0.0 255.255.255.0
 default-router 192.168.0.1
 dns-server 209.165.200.255
 domain-name ccna-lab.com
ip dhcp pool R1G1
 network 192.168.1.0 255.255.255.0
 default-router 192.168.1.1
 dns-server 209.165.200.225
 domain-name ccna-lab.com
R2#
```

Remarques générales : L'utilisation de plusieurs routeurs agissant en tant que serveurs DHCP est plus complexe puisque le routeur va assurer l'acheminement du trafic en plus, il va gérer l'adressage .Or que pour le cas d'utiliser des agents de relais DHCP il est responsable de gérer l'adressage seulement.